

Remarks/Arguments

Examiner Timothy J. Henn is thanked for the continued thorough Search and Examination of the Subject Application for Patent.

Claim 1 has been amended at line 9, changing "to at least" to --to the at least -- and at line 14, changing "and second analog" to -- said second analog --, to correct typographical errors which have occurred over a number of Office Action Responses. The basis for these changes to Claim 1 can be found in the original Claim 1.

Claim 13 has been amended at line 4, changing "or each color" to -- for each color --, to correct typographical errors which have occurred over a number of Office Action Responses. The basis for this change to Claim 13 can be found in the original Claim 13.

Claim 16 has been amended at line 2, changing "elements from a portion" to -- elements form a portion --, to correct typographical errors which have occurred over a number of Office Action Responses. The basis for this change to Claim 16 can be found in the original Claim 16.

Claim 35 has been amended at line 4, changing "said elements is associated" to -- said elements are associated -- to correct the grammar of the phrase.

Reconsideration of the Rejection of Claims 1, 3, 4, 6, 12, 13-22, 26, 28, 29, 31, 33, 35, 36, 39, and 40 under 35 U.S.C. 103(a) as being anticipated by Hashimoto (US 4,768,085) in view of Roberts (US 5,541,654) is requested. Claims 1, 3, 4, 6, 12, 13-22, 26, 28, 29, 31, 33, 35, 36, 39, and 40 describe a color imaging system for compensating a color response. Key elements of Claims 1, 3, 4, 6, 12, 13-22, 26, 28, 29, 31, 33, 35, 36, 39, and 40 are "an array controller adapted to control the readout of the elements associated with the first, second and third color components wherein said array controller directs said readout of said first, second, and third color filter components in a selected window of said array while other sections of said array are not processed and wherein said array controller simultaneously reads a 2x2 pixel block from two adjacent columns and two adjacent rows of said array." Hashimoto describes an image sensing apparatus which has the ability to read adjacent horizontal lines sequentially and simultaneously; column 3, lines 59-65. Roberts describes an imaging device which includes the ability to scan the pixels in windows of the array, or sub-arrays, more frequently than the pixels in the rest of the array; column 10, lines 9-21. It is believed that Claims 1, 3, 4, 6, 12, 13-22, 26, 28, 29, 31, 33, 35, 36, 39, and 40 are significantly different from and not obvious from Hashimoto in view of Roberts for the following reasons.

Claims 1, 3, 4, 6, 12, 13-22, 26, 28, 29, 31, 33, 35, 36, 39, and 40 describe a color imaging system which simultaneously reads a 2x2 pixel block from two adjacent columns and two adjacent rows of said array. The Examiner has argued that "the system of Hashimoto does output a 2x2 block of pixels simultaneously". We respectfully

disagree for the following reasons. Hashimoto describes an imaging system which simultaneously reads out two adjacent horizontal lines to form an odd field and two horizontal lines to form an even field. If in forming the odd field lines n and $n+1$ are simultaneously read lines $n+1$ and $n+2$ are simultaneously read to form the even field; Fig. 1 and column 3, line 53 - column 4, line 1. Hashimoto describes streaming data which is to be used to form a high quality frame image. While the two adjacent lines described by Hashimoto would contain a number of 2×2 blocks of pixels a particular 2×2 block pixels from two adjacent rows and two adjacent columns could not be selected without further signal processing which is not described by Hashimoto.

Roberts describes an imaging device which includes the ability to scan the pixels in windows of the array, or sub-arrays, more frequently than the pixels in the rest of the array, column 10, lines 9-21. However the scanning of windows or sub-arrays described by Roberts is different from the simultaneous reading of a particular 2×2 block of two adjacent rows and two adjacent columns from an array described in Claims 1, 3, 4, 6, 12, 13-22, 26, 28, 29, 31, 33, 35, 36, 39, and 40. It is believed that Roberts does not make the simultaneous reading of a particular 2×2 block of two adjacent rows and two adjacent columns from an array; as described in Claims 1, 3, 4, 6, 12, 13-22, 26, 28, 29, 31, 33, 35, 36, 39, and 40; an obvious extension of Hashimoto.

It is believed that an array controller adapted to control the readout of the elements associated with the first, second and third color components wherein said array controller directs said readout of said first, second, and third color filter components in a

selected window of said array while other sections of said array are not processed and wherein said array controller simultaneously reads a 2x2 pixel block from two adjacent columns and two adjacent rows of said array makes Claims 1, 3, 4, 6, 12, 13-22, 26, 28, 29, 31, 33, 35, 36, 39, and 40 distinct and not obvious from Hashimoto in view of Roberts. Reconsideration of the Rejection of Claims 1, 3, 4, 6, 12, 13-22, 26, 28, 29, 31, 33, 35, 36, 39, and 40 under 35 U.S.C. 103(a) as being anticipated by Hashimoto in view of Roberts; and allowance of Claims 1, 3, 4, 6, 12, 13-22, 26, 28, 29, 31, 33, 35, 36, 39, and 40; are requested.

Reconsideration of the Rejection of Claims 7, 8, 30 and 32 under 35 U.S.C. 103(a) as being anticipated by Hashimoto (US 4,768,085) in view of Roberts (US 5,541,654) as applied to Claim 1, and further in view of Boisvert et al. (US 5,329,312) is requested. Key elements of Claims 7, 8, 30, and 32 are "an array controller adapted to control the readout of the elements associated with the first, second and third color components wherein said array controller directs said readout of said first, second, and third color filter components in a selected window of said array while other sections of said array are not processed and wherein said array controller simultaneously reads a 2x2 pixel block from two adjacent columns and two adjacent rows of said array." Claim 7 adds the limitation to Claim 1 that the analog compensation units are programmable gain amplifiers. Claim 8 adds the limitation to Claim 7 that the analog compensation units are programmable gain amplifiers implemented as a separate stage. Claim 30 adds the limitation to Claim 26 that generating a compensated analog readout depends on a temperature of the system. Claim 32 adds the limitation to Claim 26 that the pixel sensor

elements are associated with the colors of red, blue and green and that the array of pixel sensor elements is arranged in a plurality of rows and columns and the act of generating comprises:

- generating an independent readout for even-numbered rows;
- generating an independent readout for odd-numbered rows;
- generating an independent readout for even-numbered columns; and
- generating an independent readout for odd-numbered columns, such that at least one element associated with a red filter component is coupled to a first programmable gain amplifier, at least one element associated with a blue filter component is coupled to a second programmable gain amplifier, and at least one element associated with a green filter component is coupled to a third programmable gain amplifier.

As indicated by the Examiner Boisvert et al. describe an improved signal processing system which provides white balancing with minimal dark level differences using separate programmable gain amplifiers for each pixel color which are temperature compensated. It is believed that Claims 7, 8, 30 and 32 are different from and not obvious from Hashimoto in view of Roberts for the reasons given above in the response to the rejection of Claim 1. It is further believed that Boisvert et al. do not make the simultaneous reading of a particular 2x2 block of two adjacent rows and two adjacent columns from an array; as is described in Claims 7, 8, 30 and 32; an obvious extension of Hashimoto in view of Roberts.

It is believed that an array controller adapted to control the readout of the elements associated with the first, second and third color components wherein said array controller directs said readout of said first, second, and third color filter components in a selected window of said array while other sections of said array are not processed and wherein said array controller simultaneously reads a 2x2 pixel block from two adjacent columns and two adjacent rows of said array makes Claims 7, 8, 30 and 32 distinct from and not obvious from Hashimoto in view of Roberts, and further in view of Boisvert et al. Reconsideration of the Rejection of Claims 7, 8, 30 and 32 under 35 U.S.C. 103(a) as being anticipated by Hashimoto in view of Roberts, and further in view of Boisvert et al.; and allowance of Claims 7, 8, 30 and 32; are requested.

Reconsideration of the Rejection of Claims 9 and 10 under 35 U.S.C. 103(a) as being anticipated by Hashimoto (US 4,768,085) in view of Roberts (US 5,541,654) as applied to Claim 1, and further in view of Zhou et al. (IEEE) is requested. Key elements of Claims 9 and 10 are "an array controller adapted to control the readout of the elements associated with the first, second and third color components wherein said array controller directs said readout of said first, second, and third color filter components in a selected window of said array while other sections of said array are not processed and wherein said array controller simultaneously reads a 2x2 pixel block from two adjacent columns and two adjacent rows of said array." Claim 9 adds the limitation to Claim 1 that the analog compensation units are programmable gain amplifiers and that the programmable gain amplifiers are contained within a pixel circuitry of the array. Claim 10 adds the limitation to Claim 1 that the analog compensation units are

programmable gain amplifiers and that the programmable gain amplifiers are within a plurality of column buffers.

It is believed that Claims 9 and 10 are different from and not obvious from Hashimoto in view of Roberts for the reasons given above in the response to the rejection of Claim 1. As indicated by the Examiner, with reference to Zhou et al., programmable gain amplifiers contained within the pixel circuitry and within a plurality of column buffers is known. It is believed, however, that Zhou et al. do not make the simultaneous reading of a particular 2x2 block of two adjacent rows and two adjacent columns from an array; as is described in Claims 9 and 10; an obvious extension of Hashimoto in view of Roberts.

It is believed that an array controller adapted to control the readout of the elements associated with the first, second and third color components wherein said array controller directs said readout of said first, second, and third color filter components in a selected window of said array while other sections of said array are not processed and wherein said array controller simultaneously reads a 2x2 pixel block from two adjacent columns and two adjacent rows of said array makes Claims 9 and 10 distinct from and not obvious from Hashimoto in view of Roberts, and further in view of Zhou et al. Reconsideration of the Rejection of Claims 9 and 10 under 35 U.S.C. 103(a) as being anticipated by Hashimoto in view of Roberts, and further in view of Zhou et al.; and allowance of Claims 9 and 10; are requested.

Reconsideration of the Rejection of Claim 23 under 35 U.S.C. 103(a) as being anticipated by Hashimoto (US 4,768,085) in view of Roberts (US 5,541,654) as applied to Claim 1, and further in view of Sano et al. (IEEE) is requested. Key elements of Claim 23 are "an array controller adapted to control the readout of the elements associated with the first, second and third color components wherein said array controller directs said readout of said first, second, and third color filter components in a selected window of said array while other sections of said array are not processed and wherein said array controller simultaneously reads a 2x2 pixel block from two adjacent columns and two adjacent rows of said array." Claim 23 adds the limitation to Claim 1 that the system further comprises a micro-lenses layer.

It is believed that Claim 23 is different from and not obvious from Hashimoto in view of Roberts for the reasons given above in the response to the rejection of Claim 1. As indicated by the Examiner, with reference to Sano et al., the use of a micro-lenses layer is known. It is believed, however, that Sano et al. do not make the simultaneous reading of a particular 2x2 block of two adjacent rows and two adjacent columns from an array; as is described in Claim 23; an obvious extension of Hashimoto in view of Roberts.

It is believed that an array controller adapted to control the readout of the elements associated with the first, second and third color components wherein said array controller directs said readout of said first, second, and third color filter components in a selected window of said array while other sections of said array are not processed and

wherein said array controller simultaneously reads a 2x2 pixel block from two adjacent columns and two adjacent rows of said array makes Claim 23 distinct from and not obvious from Hashimoto in view of Roberts, and further in view of Sano et al. Reconsideration of the Rejection of Claim 23 under 35 U.S.C. 103(a) as being anticipated by Hashimoto in view of Roberts, and further in view of Sano et al.; and allowance of Claim 23; are requested.

In summary it is believed that Claims 1, 3-4, 6-10, 12-23, 26, 28-33, 35-36, and 39-40 distinguish patentably from the references and allowance of Claims 1, 3-4, 6-10, 12-23, 26, 28-33, 35-36, and 39-40 is requested.

It is requested that should Examiner T. J. Henn not find that the Claims are now Allowable that the Examiner call the undersigned Attorney at (845)-452-5863 to overcome any problems preventing allowance.

Respectfully submitted,

A handwritten signature in black ink, appearing to be 'SBA', with a long horizontal line extending to the right.

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